



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care



NATIONAL
GUIDELINE
CLEARINGHOUSE

General

Guideline Title

Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement.

Bibliographic Source(s)

U.S. Preventive Services Task Force. Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2012 Jun 19;156(12):880-91. [46 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Screening for cervical cancer: recommendations and rationale. *Am Fam Physician* 2003 Apr 15;67(8):1759-66. [32 references]

Recommendations

Major Recommendations

The U.S. Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the levels of certainty regarding net benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of Recommendations and Evidence

This recommendation statement applies to women who have a cervix, regardless of sexual history. This recommendation statement does not apply to women who have received a diagnosis of a high-grade precancerous cervical lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised (such as those who are human immunodeficiency virus [HIV] positive).

The USPSTF recommends screening for cervical cancer in women age 21 to 65 years with cytology (Pap smear) every 3 years or, for women age 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years. See the Clinical Considerations for discussion of cytology method, HPV testing, and screening interval (A recommendation).

The USPSTF recommends against screening for cervical cancer in women younger than age 21 years (D recommendation).

The USPSTF recommends against screening for cervical cancer in women older than age 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer. See the Clinical Considerations for discussion of adequacy of prior screening and risk factors (D recommendation).

The USPSTF recommends against screening for cervical cancer in women who have had a hysterectomy with removal of the cervix and who do not have a history of a high-grade precancerous lesion (cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer (D recommendation).

The USPSTF recommends against screening for cervical cancer with HPV testing, alone or in combination with cytology, in women younger than age 30 years (D recommendation).

Clinical Considerations

Patient Population Under Consideration

This recommendation statement applies to all women who have a cervix, regardless of sexual history. This recommendation statement does not apply to women who have received a diagnosis of a high-grade precancerous cervical lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised (such as those who are HIV positive).

Screening Tests

The effectiveness of cervical cancer screening observed in the United States over the past several decades is attributed to the use of conventional cytology. Current evidence indicates that there are no clinically important differences between liquid-based cytology and conventional cytology. The USPSTF realizes that the choice of cytology method may not be under the direct control of the clinician and considers cytology screening in appropriate age groups at appropriate intervals to be of substantial net benefit, regardless of method. HPV testing with Digene Hybrid Capture 2 (HC2) (Qiagen, Germantown, Maryland) is commonly used in the United States, and both HC2 and polymerase chain reaction–based methods have been evaluated in effectiveness trials. Although alternative HPV detection methods are emerging, the clinical comparability and implications of these methods are not completely understood.

Screening Interval

Screening women age 21 to 65 years every 3 years with cytology provides a reasonable balance between benefits and harms. Among women age 30 to 65 years, HPV testing combined with cytology (co-testing) every 5 years offers a comparable balance of benefits and harms and is therefore a reasonable alternative for women in this age group who would prefer to extend the screening interval. Screening with cytology more often than every 3 years confers little additional benefit, with large increases in harms, including additional procedures and assessment and treatment of transient lesions. Treatment of lesions that would otherwise resolve on their own is harmful because it can lead to procedures with unwanted side effects, including the potential for cervical incompetence and preterm labor. Similarly, the frequency of HPV testing with cytology should not be more often than every 5 years in order to maintain a reasonable balance of benefits and harms similar to that seen with cytology alone every 3 years. Maintaining the comparability of the benefits and harms of co-testing and cytology alone demands that patients, clinicians, and health care organizations adhere to currently recommended screening intervals, protocols for repeat testing, cytologic thresholds for further diagnostic testing (that is, colposcopy) and treatments, and extended surveillance as recommended by current American Cancer Society/American Society for Colposcopy and Cervical Pathology/American Society for Clinical Pathology (ACS/ASCCP/ASCP) guidelines.

Women choosing co-testing to increase their screening interval (and potentially decrease testing) should be aware that positive screening results are more likely with HPV-based strategies than with cytology alone and that some women may require prolonged surveillance with additional frequent testing if they have persistently positive HPV results. Because HPV test results may be positive among women who would otherwise be advised to end screening at age 65 years on the basis of previously normal cytology results alone, the likelihood of continued testing may increase with HPV testing. The percentage of U.S. women undergoing co-testing who will have a normal cytology test result and a positive HPV test result (and who will therefore require additional testing) ranges from 11% among women age 30 to 34 years to 2.6% among women age 60 to 65 years.

Timing of Screening

Women Younger Than Age 21 Years

Cervical cancer is rare before age 21 years. The USPSTF found little evidence to determine whether and how sexual history should affect the age at which to begin screening. Although exposure of cervical cells to sexually transmitted HPV during vaginal intercourse may lead to cervical carcinogenesis, the process has multiple steps, involves regression, and is generally not rapid. There is evidence that screening earlier than age 21 years, regardless of sexual history, would lead to more harm than benefit. The harms are greater in this younger age group because abnormal test results are likely to be transient and to resolve on their own; in addition, resulting treatment may have an adverse effect on future child-bearing.

Women Older Than Age 65 Years

Clinicians and patients should base the decision to end screening on whether the patient meets the criteria for adequate prior testing and

appropriate follow-up per established guidelines. The ACS/ASCCP/ASCP guidelines define adequate prior screening as 3 consecutive negative cytology results or 2 consecutive negative HPV results within 10 years before cessation of screening, with the most recent test occurring within 5 years. They further state that routine screening should continue for at least 20 years after spontaneous regression or appropriate management of a high-grade precancerous lesion, even if this extends screening past age 65 years. The ACS further states that screening should not resume after cessation in women older than age 65 years, even if a woman reports having a new sexual partner.

Women Older Than Age 65 Years Who Have Never Been Screened

Screening may be clinically indicated in older women for whom the adequacy of prior screening cannot be accurately accessed or documented. Women with limited access to care, minority women, and women from countries where screening is not available may be less likely to meet the criteria for adequate prior screening. The USPSTF realizes that certain considerations may support screening in women older than age 65 years who are otherwise considered high risk (such as women with a high-grade precancerous lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised).

Assessment of Risk

It is well established that HPV infection is associated with nearly all cases of cervical cancer. Other factors that put a woman at increased risk for cervical cancer include HIV infection, a compromised immune system, in utero exposure to diethylstilbestrol, and previous treatment of a high-grade precancerous lesion or cervical cancer.

Women who have had a hysterectomy with removal of the cervix and who do not have a history of a high-grade precancerous lesion or cervical cancer are not at risk for cervical cancer and should not be screened. Women who had their cervix removed during surgery for ovarian or endometrial cancer are not at high risk for cervical cancer and would not benefit from screening. Clinicians should confirm through review of surgical records or direct examination that the cervix was removed.

Treatment

Screening aims to identify high-grade precancerous cervical lesions to prevent development of cervical cancer and early-stage asymptomatic invasive cervical cancer. High-grade lesions may be treated with ablative and excisional therapies, including cryotherapy, laser ablation, loop excision, and cold-knife conization. Early-stage cervical cancer may be treated with surgery (hysterectomy) or chemoradiation. The treatment of precancerous rather than early-stage cancerous lesions is unique to cervical cancer and is the foundation of the success of cervical cancer screening. Treatment of precancerous lesions is less invasive than treatment of cancer and results in fewer adverse effects.

Other Approaches to Prevention

Many individuals and clinicians have used the annual Papanicolaou (Pap) smear screening visit as an opportunity to discuss other health problems and preventive measures. Individuals, clinicians, and health systems should seek effective ways to facilitate the receipt of recommended preventive services at intervals that are beneficial to the patient. Efforts should also be made to ensure that individuals are able to seek care for additional health concerns as they present.

The overall effect of HPV vaccination on high-grade precancerous cervical lesions and cervical cancer is not yet known. Current trials do not provide data on long-term efficacy; therefore, the possibility that vaccination might reduce the need for screening with cytology alone or in combination with HPV testing is not established. Given these uncertainties, women who have been vaccinated should continue to be screened.

Definitions:

What the U.S. Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	<i>Note: The following statement is undergoing revision.</i> Clinicians may provide this service to selected patients	Offer or provide this service only if other considerations support offering or providing the service in an individual patient.

Grade	Grade Definitions	Suggestions for Practice
	depending on individual circumstances. However, for most individuals without signs or symptoms there is likely to be only a small benefit from this service.	
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If this service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	<p>The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as:</p> <ul style="list-style-type: none"> • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence <p>As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.</p>
Low	<p>The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:</p> <ul style="list-style-type: none"> • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes <p>More information may allow an estimation of effects on health outcomes.</p>

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Disease/ Condition(s)

Cervical cancer

Guideline Category

Prevention

Screening

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Pathology

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To summarize the U.S. Preventive Services Task Force (USPSTF) recommendations on screening for cervical cancer and the supporting evidence
- To update the 2003 recommendation statement on screening for cervical cancer

Target Population

Women who have a cervix, regardless of sexual history

Note: This recommendation statement does not apply to women who have received a diagnosis of a high-grade precancerous cervical lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised (such as those who are human immunodeficiency virus [HIV] positive).

Interventions and Practices Considered

1. Screening for cervical cancer with cytology (Papanicolaou [Pap] testing)
2. Screening for cervical cancer with a combination of cytology and human papillomavirus (HPV) testing

Major Outcomes Considered

Key Question 1: When should cervical cancer screening begin, and does this vary by screening technology or by age, sexual history, or other

patient characteristics?

Key Question 2: To what extent does liquid-based cytology improve sensitivity, specificity, and diagnostic yield and reduce indeterminate results and inadequate samples compared to conventional cervical cytology?

Key Question 3: What are the benefits of using human papillomavirus (HPV) testing as a screening test, either alone or in combination with cytology, compared with not testing for HPV?

Key Question 4: What are the harms of liquid-based cytology?

Key Question 5: What are the harms of using HPV testing as a screening test, either alone or in combination with cytology?

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Oregon Evidence-based Practice Center (EPC) for the Agency for Healthcare Research and Quality (AHRQ) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Companion Documents" field).

Data Sources

EPC staff initially searched for systematic reviews, meta-analyses, and evidence-based guidelines on cervical cancer screening listed in the Database of Abstracts of Reviews of Effects, the Cochrane Database of Systematic Reviews, PubMed, and the Health Technology Assessment Database from 2000 through 2007. Two systematic reviews addressing liquid-based cytology (LBC) screening were used to identify primary studies before 2003. No systematic reviews on human papillomavirus (HPV) testing that met the inclusion criteria were identified. The EPC staff considered all studies in the previous USPSTF review and conducted literature searches from 2003 through September 2010 by using MEDLINE, the Cochrane Central Register of Controlled Trials, and PsycINFO.

EPC staff conducted a targeted search for any studies related to the trials included in their review (published from September 2010 to 3 August 2011 in PubMed) to ensure that all relevant studies were captured in their previous literature searches. In addition, selected experts in the field were queried on 8 August 2011 to identify relevant publications. EPC staff found 9 additional studies, none of which provided additional data on trials included in the review: 4 contextually relevant or unrelated reports from previously identified cohorts, 1 performance study of a new HPV test, 2 unrelated reports from trial authors, and 2 public health reports. None added primary results to the key questions, but most added to the discussion.

Study Selection

EPC staff evaluated 4262 abstracts and 641 full-text articles (see Figure in the systematic review [see the "Availability of Companion Documents" field]). Two reviewers evaluated abstracts and articles against prespecified inclusion criteria. Discrepancies were resolved by consensus. Fair- to good-quality studies that provided evidence regarding test performance for detection of cervical intraepithelial neoplasia 2+ (CIN2, CIN3, or cancer) or CIN3+ (CIN3 or cancer), as well as harms, were included. Included studies met design-specific quality standards that minimized the effect of verification bias and were conducted in routine screening populations in countries with developed population-based screening for cervical cancer. For question 3, EPC staff evaluated the evidence regarding the use of HPV testing in screening scenarios: primary screening with HPV testing alone, primary HPV testing with cytology triage of positive HPV (reflex cytology), primary HPV plus cytology screening (co-testing), and cytology testing with HPV triage of atypical squamous cells of undetermined significance (ASC-US) or low-grade squamous intraepithelial lesion on cytology (reflex HPV). Cytology with reflex HPV is covered in the full report (see the systematic evidence review [see the "Availability of Companion Documents" field]).

Number of Source Documents

The Evidence-based Practice Center (EPC) evaluated 4262 abstracts and reviewed 641 full-text articles.

Key Question 1: 95 articles were reviewed; 6 articles, encompassing 5 studies, were included.

Key Question 2: 149 articles were reviewed; 7 articles, encompassing 4 studies, were included.

Key Question 3: 337 articles were reviewed; 48 articles, encompassing 28 studies, were included.

Key Question 4: 11 articles were reviewed; no studies were included.

Key Question 5: 49 articles were reviewed; 5 articles, encompassing 4 studies, were included.

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Rating Scheme for the Strength of the Evidence

Not applicable

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Oregon Evidence-based Practice Center (EPC) for the Agency for Healthcare Research and Quality (AHRQ) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Companion Documents" field).

Data Extraction and Quality Assessment

At least 2 investigators critically appraised and independently rated the quality of all eligible studies by using criteria based on the USPSTF methods, supplemented by the National Institute for Health and Clinical Excellence criteria for quality of systematic reviews and the QUADAS (Quality Assessment of Diagnostic Accuracy Studies) tool. Good-quality studies generally met all design-specific criteria, whereas fair-quality studies did not meet all the criteria but had no fatal flaws in study design. Poor-quality studies had substantial flaws or lack of reporting that implied bias affecting interpretation of study results and were therefore excluded after agreement among reviewers. One investigator abstracted data from included studies into evidence tables, and a second reviewer verified these data.

Data Synthesis and Analysis

EPC staff members performed qualitative data synthesis because heterogeneity in the samples, study designs, screening protocols, and instruments did not allow for quantitative synthesis. Results from diagnostic accuracy studies (to evaluate 1-time test performance) were synthesized separately from randomized, controlled trials (RCTs). For RCTs of human papillomavirus (HPV) screening, EPC staff report results for each round of screening, as well as cumulative results. In these RCTs, results were generally reported for women screened (rather than an intention-to-screen analysis). For consistency, the results for women screened (denominator) were reported unless otherwise noted. EPC staff also synthesize results for both cervical intraepithelial neoplasia (CIN) 2+ (CIN2, CIN3, or cancer) and CIN3+ (CIN 3 or cancer), even though many CIN2 lesions will regress.

Methods Used to Formulate the Recommendations

Description of Methods Used to Formulate the Recommendations

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see Table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

Table 1. U.S. Preventive Services Task Force Recommendation Grid*

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero/Negative
High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

*A, B, C, D, and I (*Insufficient*) represent the letter grades of recommendation or of insufficient evidence assigned by the U.S. Preventive Services Task Force after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field).

The overarching question that the USPSTF seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized, controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the USPSTF considers indirect evidence. To guide its selection of indirect evidence, the USPSTF constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

1. Do the studies have the appropriate research design to answer the key question(s)?
2. To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
3. To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the external validity?)
4. How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
5. How consistent are the results of the studies?
6. Are there additional factors that assist the USPSTF in drawing conclusions (e.g., presence or absence of dose-response effects, fit within a biologic model)?

The next step in the process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the USPSTF's overall assessment of evidence was described as good, fair, or poor. The USPSTF realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term *certainty* will now be used to describe the USPSTF's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important

to note that the USPSTF makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The USPSTF must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that one of the key questions in the analytic framework refers to the potential harms of the preventive service. The USPSTF considers the evidence about the benefits and harms of preventive services separately and equally. Data about harms are often obtained from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the USPSTF assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The USPSTF would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The USPSTF would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see the "Availability of Companion Documents" field) summarizes the current terminology used by the USPSTF to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF et al. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. *Ann Intern Med.* 2007;147:871-875. [5 references].

Rating Scheme for the Strength of the Recommendations

What the U.S. Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	<i>Note: The following statement is undergoing revision.</i> Clinicians may provide this service to selected patients depending on individual circumstances. However, for most individuals without signs or symptoms there is likely to be only a small benefit from this service.	Offer or provide this service only if other considerations support offering or providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If this service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a

certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	<p>The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as:</p> <ul style="list-style-type: none">• The number, size, or quality of individual studies• Inconsistency of findings across individual studies• Limited generalizability of findings to routine primary care practice• Lack of coherence in the chain of evidence <p>As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.</p>
Low	<p>The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:</p> <ul style="list-style-type: none">• The limited number or size of studies• Important flaws in study design or methods• Inconsistency of findings across individual studies• Gaps in the chain of evidence• Findings not generalizable to routine primary care practice• A lack of information on important health outcomes <p>More information may allow an estimation of effects on health outcomes.</p>

Cost Analysis

The developer reviewed published cost analyses.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Peer Review. Before the U.S. Preventive Services Task Force (USPSTF) makes its final determinations about recommendations on a given preventive service, the Evidence-based Practice Center and the Agency for Healthcare Research and Quality send a draft evidence review to 4 to 6 external experts and to Federal agencies and professional and disease-based health organizations with interests in the topic. The experts are asked to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the USPSTF in memo form. In this way, the USPSTF can consider these external comments before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment among reviewers representing professional societies, voluntary organizations, and Federal agencies, as well as posted on the Task Force Web site for public comment. These comments are discussed before the final recommendations are confirmed.

Response to Public Comments. A draft version of this recommendation statement was posted for public comment on the USPSTF Web site from

October 19, 2011, through November 30, 2011. Many comments pointed out a lack of clarity about the harms of false-positive results and the harms of screening with cytology more frequently than every 3 years or screening women younger than age 21 years. Several comments requested clarification on how information about sexual history may affect screening. Some comments highlighted the importance of reaching women who are not being screened at all. Many comments urged the USPSTF to reconsider its draft recommendation on human papillomavirus (HPV) co-testing and review new evidence that had been published since its deliberation. In response to these comments, the USPSTF clarified throughout the statement the harms that would occur from screening too frequently and in women younger than age 21 years. The USPSTF also clarified that this recommendation statement applies to women regardless of sexual history. The USPSTF agrees that the greatest effect on cervical cancer incidence and mortality would result from efforts to screen women who have not been adequately screened, and this is stated in the Rationale and elsewhere.

After the public comment period, the USPSTF considered new evidence that was published since its initial deliberation—specifically the update of the POBASCAM results and the study by Katki and colleagues. With this new evidence, in addition to the previously considered evidence, the USPSTF decided to recommend HPV testing combined with cytology (co-testing) as a reasonable alternative for women age 30 to 65 years who wish to extend the screening interval beyond 3 years.

Recommendations of Others. Recommendations for screening for cervical cancer from the following groups were discussed: the American Cancer Society (ACS), the American Society for Colposcopy and Cervical Pathology (ASCCP), and the American Society for Clinical Pathology (ASCP); the American College of Obstetricians and Gynecologists (ACOG); and the American Academy of Family Physicians (AAFP).

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is not specifically stated for each recommendation.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Benefits of Detection and Early Intervention/Treatment

Women Age 21 to 65 Years

There is convincing evidence that screening women age 21 to 65 years with cytology every 3 years substantially reduces cervical cancer incidence and mortality. Among women age 30 to 65 years, there is adequate evidence that screening with a combination of cytology and human papillomavirus (HPV) testing (co-testing) every 5 years provides benefits similar to those seen with cytology screening alone every 3 years.

Among women younger than age 30 years, there is adequate evidence that screening with HPV testing (alone or in combination with cytology) confers little to no benefit.

Women Younger Than Age 21 Years

There is adequate evidence that screening women younger than age 21 years (regardless of sexual history) does not reduce cervical cancer incidence and mortality compared with beginning screening at age 21 years.

Women Older Than Age 65 Years

There is adequate evidence that screening women older than age 65 years who have had adequate prior screening and are not otherwise at high risk provides little to no benefits.

Women After Hysterectomy

There is convincing evidence that continued screening after hysterectomy with removal of the cervix for indications other than a high-grade precancerous lesion or cervical cancer provides no benefits.

Potential Harms

Harms of Detection and Early Intervention/Treatment

Screening with cervical cytology or human papillomavirus (HPV) testing can lead to harms, and the harms of screening can take many forms. Abnormal test results can lead to more frequent testing and invasive diagnostic procedures, such as colposcopy and cervical biopsy. Evidence from randomized, controlled trials and observational studies indicates that harms from these diagnostic procedures include vaginal bleeding, pain, infection, and failure to diagnose (due to inadequate sampling). Abnormal screening test results are also associated with mild psychological harms; short-term increases in anxiety, distress, and concern about health have been reported with cytology and HPV testing.

Harms of Treatment of Screening-Detected Disease

The harms of treatment include risks from the treatment procedure itself and the potential downstream consequences of treatment. Summary evidence from observational studies indicates that some treatments for precancerous lesions (such as cold-knife conization and loop excision) are associated with adverse pregnancy outcomes, such as preterm delivery, that can lead to low birthweight in infants and perinatal death. Evidence is convincing that many precancerous cervical lesions will regress and that other lesions are so indolent and slow-growing that they will not become clinically important over a woman's lifetime; identification and treatment of these lesions constitute overdiagnosis. It is difficult to estimate the precise magnitude of overdiagnosis associated with any screening or treatment strategy, but it is of concern because it confers no benefit and leads to unnecessary surveillance, diagnostic tests, and treatments with the associated harms.

Women Age 21 to 65 Years

There is adequate evidence that the harms of screening for cervical cancer with cytology alone or in combination with HPV testing in women age 30 to 65 years are moderate. Positive screening results are more common with strategies that include HPV testing than with strategies that use cytology alone. Therefore, the likelihood of prolonged surveillance and overtreatment may increase with strategies that incorporate HPV testing. Cervical treatments may increase the risk for adverse pregnancy outcomes (for example, cervical insufficiency and preterm delivery) in women who have not yet completed childbearing.

Women Younger Than Age 30 Years

There is adequate evidence that the harms of HPV testing (alone or in combination with cytology) in women younger than age 30 years are moderate.

Women Younger Than Age 21 Years

There is adequate evidence that the harms of screening in women younger than age 21 years are moderate.

Women Older Than Age 65 Years

There is adequate evidence that the harms of screening in women older than age 65 years who have had adequate prior screening and are not otherwise at high risk are at least small.

Women After Hysterectomy

There is adequate evidence that screening after hysterectomy among women who do not have a history of a high-grade precancerous lesion or cervical cancer is associated with harms.

Qualifying Statements

Qualifying Statements

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific clinical preventive services for patients without related signs or symptoms.
- It bases its recommendations on the evidence of both the benefits and harms of the service, and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.
- The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve

considerations in addition to the evidence of clinical benefits and harms.

Implementation of the Guideline

Description of Implementation Strategy

The experiences of the first and second U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the USPSTF Task Force will make all its products available through its [Web site](#) . The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens up new possibilities for the appearance of the annual, pocket-size *Guide to Clinical Preventive Services*.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

Implementation Tools

Foreign Language Translations

Mobile Device Resources

Patient Resources

Pocket Guide/Reference Cards

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

U.S. Preventive Services Task Force. Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2012 Jun 19;156(12):880-91. [46 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1996 (revised 2012 Jun 19)

Guideline Developer(s)

U.S. Preventive Services Task Force - Independent Expert Panel

Guideline Developer Comment

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the USPSTF do not necessarily reflect policy of the U.S. Department of Health and Human Services (DHHS) or its agencies.

Source(s) of Funding

United States Government

Guideline Committee

U.S. Preventive Services Task Force (USPSTF)

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Financial Disclosures/Conflicts of Interest

The U.S. Preventive Services Task Force (USPSTF) has an explicit policy concerning conflict of interest. All members disclose at each meeting if they have a significant financial, professional/business, or intellectual conflict for each topic being discussed. USPSTF members with conflicts may be recused from discussing or voting on recommendations about the topic in question.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Screening for cervical cancer: recommendations and rationale. Am Fam Physician 2003 Apr 15;67(8):1759-66. [32 references]

Guideline Availability

Electronic copies: Available from the [Annals of Internal Medicine Web site](#) .

Availability of Companion Documents

The following are available:

Evidence Reviews:

- Vesco KK, Whitlock EP, Eder M, Lin J, Burda BU, Senger CA, Holmes RS, Fu R, Zuber S. Screening for cervical cancer: a systematic evidence review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 86. AHRQ Publication No. 11-05156-EF-1. Rockville (MD): Agency for Healthcare Research and Quality, May 2011.
- Kulasingam SL, Havrilesky L, Ghebre R, Myers, ER. Screening for cervical cancer: a decision analysis for the U.S. Preventive Services Task Force. Evidence Synthesis No. 86S. AHRQ Publication No. 11-05157-EF-1. Rockville (MD): Agency for Healthcare Research and Quality, May 2011.
- Whitlock EP, Vesco KK, Eder M, Lin J, Senger CA, Burda BU. Liquid-based cytology and human papillomavirus testing to screen for cervical cancer: a systematic review for the U.S. Preventive Services Task Force. Ann Intern Med 2011 Nov 15;155 (1):687-97.
- Whitlock EP, Vesco KK, Eder M, Lin J, Senger CA, Lutz K. Risk factors and other epidemiologic considerations for cervical cancer screening: a narrative review for the U.S. Preventive Services Task Force. Ann Intern Med 2011 Nov 15;155 (1):698-705.

Electronic copies: Available from the [U.S. Preventive Services Task Force \(USPSTF\) Web site](#) .

Background Articles:

- Barton MB et al. How to read the new recommendation statement: methods update from the U.S. Preventive Services Task Force. Ann Intern Med 2007;147:123-127.
- Guirguis-Blake J et al. Current processes of the U.S. Preventive Services Task Force: refining evidence-based recommendation development. Ann Intern Med 2007;147:117-122.
- Sawaya GF et al. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med 2007;147:871-875.

Electronic copies: Available from the [USPSTF Web site](#) .

The following are also available:

- Screening for cervical cancer: clinical summary of U.S. Preventive Services Task Force recommendation. AHRQ Publication No. 11-05156-EF-3. Rockville (MD): Agency for Healthcare Research and Quality; 2012 Mar. Electronic copies: Available from the [USPSTF Web Site](#) .
- The guide to clinical preventive services, 2010-2011. Recommendations of the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010. 292 p. Electronic copies: Available from the [AHRQ Web site](#) . See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#) .

The [Electronic Preventive Services Selector \(ePSS\)](#) , available as a PDA application and a web-based tool, is a quick hands-on tool designed to help primary care clinicians identify the screening, counseling, and preventive medication services that are appropriate for their patients. It is based on current recommendations of the USPSTF and can be searched by specific patient characteristics, such as age, sex, and selected behavioral risk factors.

Patient Resources

The following are available:

- Screening for cervical cancer: recommendations from the U.S. Preventive Services Task Force. Summaries for patients. Ann Intern Med. 2012 Jun;156(12):144. Electronic copies: Available from the [Annals of Internal Medicine Web site](#) .
- Women: stay healthy at any age. Rockville (MD): Agency for Healthcare Research and Quality. AHRQ Pub. No. 10-IP002-A. 2010 Aug. 2 p. Electronic copies: Available in Portable Document Format (PDF) in [English](#) and [Spanish](#) from the U.S. Preventive Services Task Force Web site. See the related QualityTool summary on the [Health Care Innovations Exchange Web site](#) .

Print copies: Available in English and Spanish from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse. For more information, go to <http://www.ahrq.gov/research/publications/index.html> or call 1-800-358-9295 (U.S. only).

Myhealthfinder is a new tool that provides personalized recommendations for clinical preventive services specific to the user's age, gender, and pregnancy status. It features evidence-based recommendations from the USPSTF and is available at www.healthfinder.gov .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This summary was completed by ECRI on June 30, 1998. The information was verified by the guideline developer on December 1, 1998. This summary was updated by ECRI on January 17, 2003. The updated information was verified by the guideline developer on January 20, 2003. This NGC summary was updated by ECRI Institute on June 11, 2012. The updated information was verified by the guideline developer on June 21, 2012.

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